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                  U.S. National Patent Classification
 NEWS 14  MAR 31  IFICDB, IFIPAT, and IFIUDB enhanced with new custom
                  IPC display formats
 NEWS 15  MAR 31  CAS REGISTRY enhanced with additional experimental
                  spectra
 NEWS 16  MAR 31  CA/CAplus and CASREACT patent number format for U.S.
                  applications updated
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=> s ruthenium and (bidentate or "half-sandwich") and phenyl and (anticancer or
antitumor or anti-cancer or anti-tumor)
        102485 RUTHENIUM
            23 RUTHENIUMS
        102485 RUTHENIUM
                 (RUTHENIUM OR RUTHENIUMS)
         25251 BIDENTATE
           131 BIDENTATES
         25332 BIDENTATE
                 (BIDENTATE OR BIDENTATES)
        363170 "HALF"
             6 "HALFS"
          7846 "HALVES"
        368891 "HALF"
                 ("HALF" OR "HALFS" OR "HALVES")
         35178 "SANDWICH"
          2809 "SANDWICHES"
         36923 "SANDWICH"
                 ("SANDWICH" OR "SANDWICHES")
          1992 "HALF-SANDWICH"
                 ("HALF"(W)"SANDWICH")
        359044 PHENYL
           436 PHENYLS
        359339 PHENYL
                 (PHENYL OR PHENYLS)
       1374282 PH
         10656 PHS
       1378838 PH
                 (PH OR PHS)
       1643833 PHENYL
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                (PHENYL OR PH)
         47658 ANTICANCER
            54 ANTICANCERS
         47680 ANTICANCER
                (ANTICANCER OR ANTICANCERS)
        250379 ANTITUMOR
           396 ANTITUMORS
        250398 ANTITUMOR
                (ANTITUMOR OR ANTITUMORS)
        493922 ANTI
            12 ANTIS
        493930 ANTI
                (ANTI OR ANTIS)
        356134 CANCER
         52380 CANCERS
        369337 CANCER
                (CANCER OR CANCERS)
          8206 ANTI-CANCER
                (ANTI(W)CANCER)
        493922 ANTI
            12 ANTIS
        493930 ANTI
                (ANTI OR ANTIS)
        448652 TUMOR
        168215 TUMORS
        500611 TUMOR
                (TUMOR OR TUMORS)
         12053 ANTI-TUMOR
                (ANTI(W)TUMOR)
L1           5 RUTHENIUM AND (BIDENTATE OR "HALF-SANDWICH") AND PHENYL AND (ANT
               ICANCER OR ANTITUMOR OR ANTI-CANCER OR ANTI-TUMOR)

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L1   ANSWER 1 OF 5  CAPLUS  COPYRIGHT 2008 ACS on STN
AB   The synthesis and x-ray structures of a half-sandwich
     RuII p-cymene β-diketonato complex as chlorido-, aqua-,
     9-ethylguanine- and 9-ethyladenine-adducts are reported.  Structural
     features which contribute to stabilization of adducts through
     non-covalent, weak interactions are discussed.  The x-ray crystal
     structure of the cytotoxic complex [(η6-p-cym)Ru(Ph2acac)Cl] (1),
     where Ph2acac = 1,3-diphenyl-1,3-propanedionate and p-cym = para-cymene,
     shows that the Ph rings of the acac-type ligand form a
     hydrophobic face, conferring lipophilic character on the complex.  The
     structure of the aqua adduct [(η6-p-cym)Ru(Ph2acac)H2O]CF3SO3·H
     2O·Et2O (4·H2O·Et2O), a possible activated species,
     possesses a comparatively short Ru-OH2 bond.  In the structure of
     [(η6-p-cym)Ru(Ph2acac)9EtG-N7]CF3SO3·2tol (5·2tol),
     where tol = toluene and 9EtG = 9-ethylguanine, a comparatively long Ru-N7
     bond is observed in addition to weak G CH8···O (Ph2acac)
     H-bonds.  The crystal structure of [(η6-p-cym)Ru(acac)9EtA-N7]PF6 (6),
     where acac = acetylacetonate and 9EtA = 9-ethyladenine, a rare example of
     a Ru complex containing monodentate adenine, shows a strong H-bonding
     interaction between N6H···O(acac), which may
     contribute to the selectivity of {(η6-p-cym)Ru(acac)}+ towards adenine
     bases.
ACCESSION NUMBER:        2007:1191740  CAPLUS
DOCUMENT NUMBER:         148:55179
TITLE:                   Chlorido-, aqua-, 9-ethylguanine- and
                         9-ethyladenine-adducts of cytotoxic ruthenium
                         arene complexes containing O,O-chelating ligands
AUTHOR(S):               Melchart, Michael; Habtemariam, Abraha; Parsons,
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Simon; Sadler, Peter J.
CORPORATE SOURCE: School of Chemistry, University of Edinburgh, Edinburgh, EH9 3JJ, UK
SOURCE: Journal of Inorganic Biochemistry (2007), 101(11-12), 1903-1912
CODEN: JIBIDJ; ISSN: 0162-0134
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2008 ACS on STN
AB New half-sandwich RuII-[9]aneS3 complexes ([9]aneS3 = 1,4,7-trithiacyclononane), [RuCl2(PTA)([9]aneS3)] (4), [RuCl(PTA)2([9]aneS3)][OTf] (5), [RuCl(en)([9]aneS3)][OTf] (6), [RuCl(enac)([9]aneS3)][OTf] (7), [RuCl(bipy)([9]aneS3)][OTf] (8), and [Ru(DMSO-S)(bipy)([9]aneS3)][OTf]2 (9) [PTA = 1,3,5-triaza-7-phosphaadamantane; enac = 1,2-bis(isopropyleneimino)ethane; OTf = CF3SO3-] were prepared from Ru-[9]aneS3-DMSO precursors and structurally characterized, both in solution and in the solid state by x-ray crystallog. Some of them are analogs of known cytotoxic organometallic RuII-(η6-arene) and RuII-(η5-cyclopentadienyl) compds., in which the aromatic fragment is replaced by the S macrocycle 1,4,7-trithiacyclononane, while the rest of the coordination sphere is left unchanged. Similarly to the aromatic analogs for which data are available, in aqueous solution the Ru-[9]aneS3 complexes (with the exception of 5) hydrolyze a chloride (or a DMSO in the case of 9) to give the corresponding aqua species. This process is rapidly reversed in the presence of free chloride, and coordination of phosphate probably occurs to the aquo species in phosphate buffered solns. at physiol. pH. Preliminary in vitro tests performed on complexes 4-6 against the mouse adenocarcinoma cancer cell line (TS/A) and the human mammary normal cell line (HBL-100) showed that, in general, the Ru-[9]aneS3 compds. have a cytotoxicity comparable to that of the corresponding organometallic analogs. Probably the aromatic fragment of the piano-stool RuII compds. is not an essential feature for the in vitro anticancer activity, and it might be effectively replaced by another face-capping ligand with a low steric demand, such as [9]aneS3.
ACCESSION NUMBER: 2005:1056291 CAPLUS
DOCUMENT NUMBER: 144:204530
TITLE: Is the aromatic fragment of piano-stool ruthenium compounds an essential feature for anticancer activity? The development of New RuII-[9]aneS3 analogues
AUTHOR(S): Serli, Barbara; Zangrando, Ennio; Gianferrara, Teresa; Scolaro, Claudine; Dyson, Paul J.; Bergamo, Alberta; Alessio, Enzo
CORPORATE SOURCE: Dipartimento di Scienze Chimiche, University of Trieste, Trieste, 34127, Italy
SOURCE: European Journal of Inorganic Chemistry (2005), (17), 3423-3434
CODEN: EJICFO; ISSN: 1434-1948
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:204530
REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2008 ACS on STN

AB Four new complexes of Ru(III), [Ru(L)2Cl2]Cl, where L = 2-amino-4-phenylthiazole (CAS 2010-06-2), 2-amino-4-methylthiazole (CAS 1603-91-4), Et 2-amino-4-methyl-5-thiazolecarboxylate (CAS 7210-76-6) and Et 2-amino-4-phenyl-5-thiazolecarboxylate (CAS 64399-23-1), were prepared The syntheses were carried out in polar medium and inert atmospheric at a molar ratio Ru:L = 1:2 or 1:3. The compds. obtained were characterized by IR-, 1H-NMR- 13C-NMR-, UV-visible-, EPR spectroscopy, magnetochem. and conductivity measurements. The ligands behaved as bidentate, binding Ru(III) through the N atoms from the amino group and the heterocycle. The complex of Et 2-amino-4-phenyl-5-thiazolecarboxylate showed significant antileukemic activity on various human cells (IC50 values ranging from 20 to 92 μmol/l). Toxicol. studies on mice indicated that such concns. could be reached without mortality. This compound exhibited a promising antineoplastic potential and needs further pharmacol. and toxicol. evaluation.

ACCESSION NUMBER: 2004:595258 CAPLUS
DOCUMENT NUMBER: 142:67937
TITLE: Complexes of ruthenium(III) with some 2-aminothiazole derivatives - synthesis, properties and pharmacological studies
AUTHOR(S): Nikolova, Antonina; Ivanov, Darvin; Bontchev, Panayot; Buyukliev, Rossen; Mehandjiev, Dimitar; Gochev, Georgi; Konstantinov, Spiro; Karaivanova, Margarita
CORPORATE SOURCE: Faculty of Pharmacy, Medical University, Sofia, Bulg.
SOURCE: Arzneimittel Forschung (2004), 54(6), 323-329
CODEN: ARZNAD; ISSN: 0004-4172
PUBLISHER: Editio Cantor Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:67937
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2008 ACS on STN

AB Ru(II) complexes of potentially NNS tridentate but functionally NS bidentate chelating ligands as 4-substituted 4-Ph and 4-cyclohexyl thiosemicarbazones of pyridine 2-aldehyde and thiophene 2-aldehyde (LH) were synthesized using Ru(PPh3)3Cl2 as the starting material. The complexes are [Ru(PPh3)2(LH)2]X2, [L1H, L2H, L3H, L4H, L5H and L6H are 4-(p-fluorophenyl), 4-(p-chlorophenyl) 4-(p-iodophenyl), 4-(p-hydroxyphenyl), 4-(p-methylphenyl) and 4-(p-cyclohexyl) thiosemicarbazones of pyridine 2-aldehyde and L7H is the 4-cyclohexyl thiosemicarbazone of thiophene 2-aldehyde and X = ClO4, PF6]. [Ru(bipy)(L6H)2](ClO4)2, also was synthesized. All the complexes were characterized by elemental analyses, measurement of conductance in solution, magnetic susceptibility at room temperature and by spectroscopic techniques. Electrochem. behavior of the complexes was examined by cyclic voltammetry. The structure of cis-[Ru(PPh3)2(L6H)2](ClO4)2·2H2O, was solved by single crystal x-ray diffraction technique. All the ligands are chelated to the Ru(II) center in its thione form through its imine N and the thione S. The pyridine ring N remained uncoordinated. The two PPh3 mols. are situated cis to each other. All the complexes exhibit antibacterial activity in terms of Escherichia coli growth-inhibition capacity (MIC data provided) and two of them hold the possibility of displaying antitumor activity (no data).

ACCESSION NUMBER: 2003:66317 CAPLUS
DOCUMENT NUMBER: 138:394825
TITLE: Synthesis and characterization of some biologically active ruthenium(II) complexes of thiosemicarbazones of pyridine 2-aldehyde and thiophene 2-aldehyde involving some ring substituted

4-phenylthiosemicarbazides and 4-cyclohexylthiosemicarbazide. Crystal structure of cis-[Ru(PPh3)2(L6H)2](ClO4)2·2H2O [L6H = 4-(cyclohexyl)thiosemicarbazone of pyridine 2-aldehyde]

AUTHOR(S): Sengupta, Parbati; Dinda, Rupam; Ghosh, Saktiprosad; Sheldrick, William S.

CORPORATE SOURCE: Indian Association for the Cultivation of Science, Department of Inorganic Chemistry, Kolkata, 700 032, India

SOURCE: Polyhedron (2003), 22(3), 447-453
CODEN: PLYHDE; ISSN: 0277-5387
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:394825
REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2008 ACS on STN

AB The recognition of nucleic acid derivs. by organometallic ruthenium(II) arene anticancer complexes of the type [(η6-arene)Ru(II)(en)X] (en = ethylenediamine, arene = biphenyl (Bip), tetrahydroanthracene (THA), dihydroanthracene (DHA), p-cymene (Cym) or benzene (Ben), X = Cl- or H2O) was studied using 1H, 31P and 15N (15N-en) NMR spectroscopy. For mononucleosides, [(η6-Bip)Ru(en)]2+ binds only to N7 of guanosine, to N7 and N1 of inosine, and to N3 of thymidine. Binding to N3 of cytidine was weak, and almost no binding to adenosine was observed The reactivity of the various binding sites of nucleobases toward Ru at neutral pH decreased in the order G(N7) > I(N7) > I(N1), T(N3) > C(N3) > A(N7), A(N1). Therefore, pseudo-octahedral diamino Ru(II) arene complexes are much more highly discriminatory between G and A bases than square-planar Pt(II) complexes. Such site-selectivity appears to be controlled by the en NH2 groups, which H-bond with exocyclic oxygens but are nonbonding and repulsive toward exocyclic amino groups of the nucleobases. For reactions with mononucleotides, the same pattern of site selectivity was observed, but, in addition, significant amts. of the 5'-phosphate-bound species (40-60%) were present at equilibrium for 5'-TMP, 5'-CMP and 5'-AMP. In contrast, no binding to the phosphodiester groups of 3', 5'-cyclic-GMP (cGMP) or cAMP was detected. Reactions with nucleotides proceeded via aquation of [(η6-arene)Ru(en)Cl]+, followed by rapid binding to the 5'-phosphate, and then rearrangement to give N7, N1, or N3-bound products. Small amts. of the dinuclear species, e.g., Ru-O(PO3)GMPN7-Ru, Ru-O(PO3)IMPN1-Ru, Ru-O(PO3)TMPN3-Ru, Ru-N7IMPN1-Ru, and Ru-N7InoN1-Ru were also detected. In competitive binding expts. for [(η6-Bip)Ru(en)Cl]+ with 5'-GMP vs. 5'-AMP or 5'-CMP or 5'-TMP, the only final adduct was [(η6-Bip)Ru(en)(N7-GMP)]. Ru-H2O species were more reactive than Ru-OH species. The presence of Cl- or phosphate in neutral solution significantly decreased the rates of Ru-N7 binding through competitive coordination to Ru. In kinetic studies (pH 7.0, 298 K, 100 mM NaClO4), the rates of reaction of cGMP with {(η6-arene)Ru(II)(en)X}n+ (X = Cl- or H2O) decreased in the order: THA > Bip > DHA >> Cym > Ben, suggesting that N7-binding is promoted by favorable arene-purine hydrophobic interactions in the associative transition state. These findings have revealed that the diamine NH2 groups, the hydrophobic arene, and the chloride leaving group have important roles in the novel mechanism of recognition of nucleic acids by Ru arene complexes, and will aid the design of more effective anticancer complexes, as well as new site-specific DNA reagents.

ACCESSION NUMBER: 2002:894426 CAPLUS
DOCUMENT NUMBER: 138:106822

TITLE: Highly Selective Binding of Organometallic

	Ruthenium Ethylenediamine Complexes to Nucleic Acids: Novel Recognition Mechanisms
AUTHOR(S):	Chen, Haimei; Parkinson, John A.; Morris, Robert E.; Sadler, Peter J.
CORPORATE SOURCE:	Department of Chemistry, University of Edinburgh, Edinburgh, EH9 3JJ, UK
SOURCE:	Journal of the American Chemical Society (2003), 125(1), 173-186 CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER:	American Chemical Society
DOCUMENT TYPE:	Journal
LANGUAGE:	English
OTHER SOURCE(S):	CASREACT 138:106822
REFERENCE COUNT:	73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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